

STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763

N00004130 Lab ID: Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

N00004130001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

02/09/2009 10:45

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS

Send Report To:

327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

02/09/2009 13:50

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity:

Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	63	mg/L	3.8	10	S Burchfield	2/9/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	63	mg/L	0.7	1	P Leathers	2/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004130002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

02/09/2009 10:50

Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To:

TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

02/09/2009 13:50

Received By:

P Singh

pH: Chlorine, residual:

Conductivity: Temperature: **Dissolved Oxygen:**

Field Determinations

Other: Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY:						
Total Alkalinity	61	mg/L	3.8	10	S Burchfield	2/9/2009	

TEST: Hardness, Calcium	ME	THOD: SM 350				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	62	mg/L	0.7	1	P Leathers	2/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004130003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

02/09/2009 11:30

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12

Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

02/09/2009 13:50

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	alinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY: D						
Total Alkalinity	72	mg/L	3.8	10	S Burchfield	2/9/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	69	mg/L	0.7	1	P Leathers	2/10/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004130004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW **Project Site No.:**

Station No.:

Date/Time Collected: 02/09/2009 11:35

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

02/09/2009 13:50

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY:						
Total Alkalinity	79	mg/L	3.8	10	S Burchfield	2/9/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	66	mg/L	0.7	1	P Leathers	2/10/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein TDEC-DWS 200 East Race St Knoxville, TN 37763

Lab ID: N00004130 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004130001

Project Name:

Sample Description:

on: KINGSTON WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

02/09/2009 10:45

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-DWS 327.39-12

Send Report To:
Agency Invoiced:

TDEC-DWS

13:50

Priority Date:

Date/Time Received: 02/09/2009

Received By:

P Singh

Field Determinations

:Ha

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	02/10/2009				A Bass	2/10/2009	

TEST: ICP-MS	ME	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	2/10/2009
Barium	25	μg/L	2.5	5	M Pattanayek	2/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	2/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	2/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	2/10/2009
Cobalt	0.22J	μ g /L	0.04	1	M Pattanayek	2/10/2009
Lead	0.45J	μg/L	0.10	1	M Pattanayek	2/10/2009
Manganese	34	μg/L	0.42	1	M Pattanayek	2/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	2/10/2009
Thallium	1.3	μg/L	0.03	1	M Pattanayek	2/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	2/10/2009

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	2/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit

N00004130002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:
Date/Time Collected:

02/09/2009 10:50

Sampler's Name: County:

GEOFF KLEIN ROANE - 73

Sample Matrix:

ROANE - 7
Water

EFO: Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received:

02/09/2009 13:50

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	02/10/2009				A Bass	2/10/2009	

TEST: ICP-MS	ME ⁻	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	2/10/2009	
Barium	22	μg/L	2.5	5	M Pattanayek	2/10/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	2/10/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	2/10/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	2/10/2009	
Cobalt	0.11J	μg/L	0.04	1	M Pattanayek	2/10/2009	
Lead	0.12J	μg/L	0.10	1	M Pattanayek	2/10/2009	
Manganese	4.1	μg/L	0.42	1	M Pattanayek	2/10/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	2/10/2009	
Thallium	0.45J	μg/L	0.03	1	M Pattanayek	2/10/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	2/10/2009	

TEST: Mercury	ME.	THOD: EPA 24	5.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	2/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004130003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

EINICH

Project Site No.:

Station No.:

Date/Time Collected:

02/09/2009 11:30

Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS

Billing Code: Send Report To: 327.39-12

Send Report To:
Agency Invoiced:

TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received:

02/09/2009 13:50

Received By:

P Singh

Field Determinations

:Hq

Chlorine, residual:
Conductivity:
Temperature:
Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	02/10/2009				A Bass	2/10/2009	

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	2/10/2009
Barium	26	μg/L	2.5	5	M Pattanayek	2/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	2/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	2/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	2/10/2009
Cobalt	0.07J	μg/L	0.04	1	M Pattanayek	2/10/2009
Lead	U	μg/L	0.10	1	M Pattanayek	2/10/2009
Manganese	4.2	μg/L	0.42	1	M Pattanayek	2/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	2/10/2009
Thallium	0.26J	μg/L	0.03	1	M Pattanayek	2/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	2/10/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	2/10/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004130004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.: Date/Time Collected:

Date/Time Collected: 02/09/2009 11:35 **Sampler's Name:** GEOFF KLEIN

County: Sample Matrix: ROANE - 73

Sample Matrix: Water

EFO: Knoxville

Sampling Agency: TDEC-DV

TDEC-DWS

Billing Code: Send Report To: Agency Invoiced:

TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received: 02/09/2009 13:50

Received By: P Singh

pH: Chlorine, residual: Conductivity:

Field Determinations

Conductivity:
Temperature:
Dissolved Oxygen:

Other:

Flow: CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	02/10/2009				A Bass	2/10/2009	

ME	THOD: EPA 20	0.8			
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
U	μg/L	0.93	5	M Pattanayek	2/10/2009
27	μg/L	2.5	5	M Pattanayek	2/10/2009
U	μg/L	0.11	1	M Pattanayek	2/10/2009
U	μg/L	0.41	1	M Pattanayek	2/10/2009
U	μg/L	2.0	5	M Pattanayek	2/10/2009
0.10J	μg/L	0.04	1	M Pattanayek	2/10/2009
0.11J	μg/L	0.10	1	M Pattanayek	2/10/2009
18	μg/L	0.42	1	M Pattanayek	2/10/2009
U	μg/L	1.3	5	M Pattanayek	2/10/2009
0.20J	μg/L	0.03	1	M Pattanayek	2/10/2009
U	μg/L	3.4	5	M Pattanayek	2/10/2009
	RESULT U 27 U U 0.10J 0.11J 18 U 0.20J	RESULT UNITS U μg/L 27 μg/L U μg/L U μg/L U μg/L 0.10J μg/L 0.11J μg/L 18 μg/L U μg/L U μg/L 0.20J μg/L	U μg/L 0.93 27 μg/L 2.5 U μg/L 0.11 U μg/L 0.41 U μg/L 2.0 0.10J μg/L 0.04 0.11J μg/L 0.10 18 μg/L 0.42 U μg/L 1.3 0.20J μg/L 0.03	RESULT UNITS MDL MQL U μg/L 0.93 5 27 μg/L 2.5 5 U μg/L 0.11 1 U μg/L 0.41 1 U μg/L 2.0 5 0.10J μg/L 0.04 1 0.11J μg/L 0.10 1 18 μg/L 0.42 1 U μg/L 1.3 5 0.20J μg/L 0.03 1	RESULT UNITS MDL MQL ANALYZED BY: U μg/L 0.93 5 M Pattanayek 27 μg/L 2.5 5 M Pattanayek U μg/L 0.11 1 M Pattanayek U μg/L 0.41 1 M Pattanayek U μg/L 2.0 5 M Pattanayek 0.10J μg/L 0.04 1 M Pattanayek 0.11J μg/L 0.10 1 M Pattanayek 18 μg/L 0.42 1 M Pattanayek U μg/L 1.3 5 M Pattanayek 0.20J μg/L 0.03 1 M Pattanayek

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	2/10/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit